Next Meeting
Sunday 11ᵗʰ April
Belviour Guides Hall, 6 Silva Drive West Wodonga

On 31 March 2021, the Royal Australian Air Force marks 100 years of service to Australia
https://airforce2021.airforce.gov.au/

VI 100 AF on air for 100 Days from 1 March to 29 May 2021

Details in QRZ.com   VI 100 AF

Amateur Radio VI 100 AF / VK 100 AF Introduction

Hello I am CPL Stuart Birkin, Royal Australian Air Force reservist, but also VK8NSB an amateur radio operator. I have now served both permanent and reserve in the Air Force for over 33 years, and am very proud to be part of the centenary of the Air Force in 2021.

The Air Force in Australia is celebrating 100 years of service to Australia on the 31st March 2021.

Working with the Wireless Institute of Australia & the Australian Communications Management Authority we have obtained 2 x special event callsigns that will be used to celebrate the centenary of the Air Force in Australia.

VI100AF will be on air for 100 days, from 1 March to 29 May 2021 and VK100AF will be on air from 1 March to 31 Aug 2021.

44 amateur radio operators and 4 club stations from all states and territories in Australia, including many ex and current serving defence members have volunteered there time to support this operation and will be using the special callsigns over the next Months from there home locations.

Planning is currently also occurring to have 4 ex and current Air Force Base's on air, including an operation I am organising, which is RAAF Base Darwin on the Air Force's Birthday, the 31 March 21.

We have established 2 web sites, 1 for each callsign on www.qrz.com where more information about each of the calls can be obtained. I have also been working very closely with the Air Force who fully support the operation that amateur radio operators in Australia will be doing over the next Months with the VI and VK100AF call signs.

There will be 2 QSL cards available, a 4-sided QSL for those who request a card directly, and a 2 sided card for those requesting via the buro. The QSL Manager for this operation is Tim M0URX, who is a very professional QSL Manager in the World of Amateur Radio.

Well, that's about it from myself, please join in the celebrations of the Air Force's Centenary and look for both special call signs around the bands, I wish you all well, and 73, from myself, Stuie, VK8NSB, the Station Manager for both VI and VK 100AF call signs.

Amateur TV live to to the World

Ian VK3QL will be on air with DATV every Tuesday night between 6pm and 9pm starting 2 March 21 using VI 100 AF.

These transmissions are part of the Melbourne VK3RTV weekly net broadcast to the greater Melbourne metropolitan area. Ian plans to include pre-prepared segments celebrating the 100 years of RAAF operations during his net segments.

This net is also streamed worldwide live via Ians YouTube channel Ian VK3QL and the BATC (British Amateur Television Club) website and the recordings of the net will be made available on his YouTube channel for some months after transmissions. Email Ian at vksignal-99@yahoo.com.au for more information.

KRMNPA Activation Weekend

The long awaited KRMNPA Activation Weekend appears to be all OK to get going in 2021.

The Dates remain as Saturday April 10 & Sunday April 11.
This year it is "officially" a 48 Hour Activation window, although you are most welcome to add other days if it suits your plans!

The activation period will commence at 0001 EST on Saturday morning April 10 and finish at 2359 EST Sunday night April 11.
Eastern Standard Time used to keep it simple for operator calculations.

Please note Daylight Saving finishes April 4.

Total operational time for the official Activation period is 48 Hours

Given this is the Tenth activation period there will be a "Special" Operating Award designed to encourage operation by Activators and Hunters. This Award/s are provided by Amateur Radio Victoria.

The Award will consist of One wall plaque for the leading Activator and One wall plaque for the leading Hunter being available.
These Two wall plaques will be similar to the normal KRMNPA plaques.
There will be no charge for either plaques.

The Special 2021 Award/s are point based and calculations are simple!

Activator Plaque: For each eligible contact made at your chosen Park/s you gain 1 Point.
Multiply your Contacts by the number of VK3 National Parks activated to arrive at your final points Tally.

Example 1: activate 3 eligible Parks across the 48 period with say 15 Contacts in each Park your final Tally is 3 x 15 = 45 points.

Example 2: activate 2 eligible Parks across the 48 Hour Period with say 30 Contacts in each Park your final tally is 2 x 30 = 60 points

The idea is to encourage Portable Operation from either One Park or Ten Parks. The choice is yours.   Normal KRMNPA rules of engagement apply.
Please check these Rules at the ARV website.

Should there be Two Operators with the same score (very possible!) the Plaque will be awarded to the Operator who arrived at their claimed score first by Logged time.

No Multiple logged Callsigns allowed!
Only One Call Sign logged from the Contact (per park) is eligible.
One Contact per person/per park is only allowed.

Hunters Plaque: For those interested in chasing this Award, a similar Points scheme is applicable:
Log as many Parks as possible across the 48Hour Period to arrive at say 13 Points. (13 Parks) and Multiply this by the Number of Activators worked in each Park.
There will be Multiple activations I am sure!

Example 1: Hunter Logs 13 Parks in total across the 48 hour weekend. 1 Point Per Park.
In 4 of these Parks he made multiple Contacts with different activators.   13 Parks x 4
activators in total. 13 x 4 = 52 Points

Example 2: Hunter Logs say 15 Parks in total across the 48 hour weekend.   1 Point Per Park.
In each park the Hunter only worked One Activator. So final claim is 15 x 1 =15 Points

Should there be Two Hunters with the same score (very possible!) the Hunters Plaque will be
awarded to the Hunter Operator who arrived at their claimed score first by Logged time.

No Multiple logged Callsigns allowed!
Only One Call Sign logged from the Activator (per park) is eligible.
One Contact per person/per park is only allowed.

I will require neat and correct Logs to allow me to verify eligible contacts from those
applying for the Award.   These Logs can be Paper or Electronic in your preferred format. I
would expect Times will be logged as UTC and this is the preferred format.

The Submission closing Date for electronic Logs will be Monday May 10. Snail Mail Logs will
Monday May 17. This allows nearly 4 weeks for submission. More details regarding submission
will follow soon.

Activators can also apply for the Hunters Award, using the same Rules of engagement as above.

The concept for this Special KRMNPA is simple: To encourage Portable Activity!

Although eligible Parks are only the 45 VK3 National Parks (some Parks remain CLOSED! Check
the Parks Victoria website for the up to date details) keep in mind all contacts are eligible
for the VKFF / WWFF points tally as well!

OK once again, You do not have to participate (as a Hunter or Activator) in the Special
Operating award.   You are more than welcome to treat the activation weekend as a normal
KRMNPA activation weekend.

There is no pressure to be involved in the Special Award.
The choice is totally yours!

Interested parties can view the KRMNPA rules here: https://www.amateurradio.com.au/awards

Keen activators and hunters can also join the KRMNPA Group here: krmnpa@groups.io

Regards

Tony VK3XV

Awards | Amateur Radio Victoria

The aim is to encourage and recognise portable operation in Victoria's 45 National Parks, and
the logging of contacts with those in the parks.

www.amateurradio.com.au

Why your internet habits are not as clean as you think

The internet allows us to send messages, share pictures, download music and stream videos at a touch of a button, but our online habits have a surprising impact on the environment.
It's probable you've already replied to a couple of emails today, sent some chat messages and maybe performed a quick internet search. As the day wears on you will doubtless spend even more time browsing online, uploading images, playing music and streaming video.
Each of these activities you perform online comes with a small cost – a few grams of carbon dioxide are emitted due to the energy needed to run your devices and power the wireless networks you access. Less obvious, but perhaps even more energy intensive, are the data centres and vast servers needed to support the internet and store the content we access over it.

Although the energy needed for a single internet search or email is small, approximately 4.1 billion people, or 53.6% of the global population, now use the internet. Those scraps of energy, and the associated greenhouse gases emitted with each online activity, can add up.

The carbon footprint of our gadgets, the internet and the systems supporting them account for about 3.7% of global greenhouse emissions, according to some estimates. It is similar to the amount produced by the airline industry globally, explains Mike Hazas, a researcher at Lancaster University. And these emissions are predicted to double by 2025.

If we were to rather crudely divide the 1.7 billion tonnes (1.6 billion tons) of greenhouse gas emissions estimated to be produced in the manufacture and running of digital technologies between all internet users around the world, it means each of us is responsible for 400g (14oz) of carbon dioxide a year.

But things are not that simple – this figure can vary depending where in the world you are. Internet users in some parts of the globe will have a disproportionately large footprint. One study estimated that 10 years ago, the average Australian internet user was responsible for the equivalent of 81kg (179lbs) of carbon dioxide (CO2e) being emitted into the atmosphere. Improvements in energy efficiency, economies of scale and use of renewable energy will doubtless have reduced this, but it is clear that people in developed nations still account for the majority of the internet's carbon footprint. (CO2e is a unit used to express the carbon footprint of all greenhouse gases together as if they were all emitted as carbon dioxide)

For some, the realisation that their online activity is harming the planet has spurred them into taking action.

"Anything we can do to reduce carbon emissions is important, no matter how small, and that includes how we behave on the internet," says Philippa Gaut, a teacher from Surrey, UK. She is one of a growing number of eco-conscious consumers trying to reduce their environmental impact online and on their phones. "If everybody made changes, it would have more impact," she adds

One of the difficulties in working out the carbon footprint of our internet habits is that few people can agree on what they should and should not include. Should it include the emissions that come from manufacturing the computing hardware? And what about those from the staff and buildings of technology companies? Even the figures around the running of data centres are disputed – many run on renewable energy, while some companies buy "carbon off-sets" to clean up their energy use.

While many companies claim to power their data centre's using renewable energy, in some parts of the world they are still largely powered from the burning of fossil fuels
In the US, data centres are responsible for 2% of the country's electricity use, while globally they account for just under 200 terawatt Hours (TWh). According to the United Nation's International Telecommunications Union, however, this figure has flatlined in recent years despite rising internet traffic and workloads. This is largely because of improved energy efficiency and the move to centralise data centres into giant facilities.

But while many companies claim to power their data centre's using renewable energy, in some parts of the world they are still largely powered from the burning of fossil fuels. And it can be difficult for consumers to choose which data centres they want to use. Many of the major cloud providers, however, have pledged to cut their carbon emissions, so storing photos, documents and running services off their servers where possible is one approach to take.

As an individual, simply upgrading our equipment less often is one way of cutting the carbon footprint of our digital technology. The greenhouse gases emitted while manufacturing and transporting these devices can make up a considerable portion of the lifetime emissions from a piece of electronics. One study at the University of Edinburgh found that extending the time you use a single computer and monitors from four to six years could avoid the equivalent of 190kg of carbon emissions.

Eco-messaging

We can also alter the way we use our gadgets to cut our digital carbon footprints. One of the easiest ways is to switch they way we send messages.

Perhaps unsurprisingly, the footprint of an email also varies dramatically, from 0.3g CO2e for a spam email to 4g (0.14oz) CO2e for a regular email and 50g (1.7oz) CO2e for one with a photo or hefty attachment, according to Mike Berners-Lee, a fellow at Lancaster University who researches carbon footprints. These figures, however, were crunched by Berners-Lee 10 years ago. Charlotte Freitag, a carbon footprint expert at Small World Consulting, the company founded by Berners-Lee, says the impact of emailing may have gone up.

"We think the footprint per message might be higher today because of the bigger phones people are using," she says.

While spam emails can have quite a small carbon footprint, sending images or large attachments can have a much bigger impact.

Based on the older figures, some people have estimated that their own emails will generate 1.6kg (3.5lb) CO2e in a single day. Berners-Lee himself also calculated that a typical business user creates 135kg (298lbs) CO2e from sending emails every year, which is the equivalent of driving 200 miles in a family car.

But it should also be easy to cut this down. By simply stopping unnecessary niceties such as "thank you" emails we could collectively save a lot of carbon emissions. If every adult in the UK sent one less "thank you" email, it could save 16,433 tonnes of carbon a year – the equivalent to taking 3,334 diesel cars off the road, according to energy company, OVO.

"While the carbon footprint of an email isn't huge, it's a great illustration of the broader principle that cutting the waste out of our lives is good for our wellbeing and good for the environment," Berners-Lee says.

Swapping email attachments for links to documents and not sending messages to multiple recipients are another easy way to reduce our digital carbon footprints, as well as unsubscribing from mailing lists we no longer read. "I unsubscribed from automatically generated newsletters, as when I learned about the carbon footprint from emails, I was horrified," says Gaut. "Now, I'm careful not to send out my email to new websites… it's made me consider the impact more."
According to estimates by antispam service Cleanfox, the average user receives 2,850 unwanted emails every year from subscriptions, which are responsible for 28.5kg (63lbs) CO2e.

If every adult in the UK sent one less "thank you" email, it could save 16,433 tonnes of carbon a year – the equivalent to taking 3,334 diesel cars off the road
Choosing to send an SMS text message is the perhaps the most environmentally-friendly alternative as a way of staying in touch because each text generates just 0.014g of CO2e. A tweet is estimated to have a footprint of

0.2g CO2e (although Twitter did not respond to requests to confirm this figure) while sending a message via a private messaging app such as WhatsApp or Facebook Messenger is estimated by Freitag to be only slightly less carbon intensive than sending an email. Again this can depend on what you are sending – gifs, emojis and images have a greater footprint than plain text.

The carbon footprint of making a one-minute mobile phone call is a little higher than sending a text, according to Freitag, but making video calls over the internet is much higher. One study from 2012 estimated that a five-hour meeting held over a video conferencing call between participants in different countries would produce between 4kg (8.8lbs) CO2e and 215kg (474lbs) CO2e.

But it is important to remember where it replaces travel to reach meetings, it can be far better for the environment. The same study found the video conferencing produced just 7% of the emissions of meeting in person. Another study found "the impact of a car ride exceeds the impact of a video conference at less than 20km".

Clean searching

Internet searching is another tricky area. A decade ago, each internet search had a footprint of 0.2g CO2e, according to figures released by Google. Today, Google uses a mixture of renewable energy and carbon offsetting to reduce the carbon footprint of its operations, while Microsoft, which owns the Bing search engine, has promised to become carbon negative by 2030, and efforts are underway to investigate whether this footprint is now higher or lower.

According to Google's own figures, however, an average user of its services – someone who performs 25 searches each day, watches 60 minutes of YouTube, has a Gmail account and accesses some of its other services – produces less than 8g (0.28oz) CO2e a day.

Newer search engines, however, are attempting to set themselves apart as greener options from the outset. Ecosia, for example, says it will plant a tree for every 45 searches it performs. This sort of carbon offsetting can help to remove carbon from the atmosphere, but the success of these projects often depends on how long the trees grow for and what happens to them when they are chopped down.

Regardless of the search engine you choose, using the web to find information is more sustainable than browsing in books. In fact, a paperback's carbon footprint is around 1kg (2.2lbs) CO2e, while a weekend newspaper accounts for between 0.3kg (10oz) and 4.1kg (9lbs) CO2e making reading the news online more environmentally friendly than poring over a paper.

But you could still read a lifetime of paperbacks – 2,300 to be precise – for the same carbon footprint as a flight from London to Hong Kong, so don't feel too guilty for reading the next best seller.

Those who have been tempted by cryptocurrencies might also want to think carefully about the environmental impact of the transactions they conduct. Vast amounts of computing power are needed for the so-called "proof of work" algorithm that is used to validate transactions on Blockchain's distributed ledger system. One recent study estimated that BitCoin alone is responsible for around 22m tonnes of carbon dioxide emissions every year – greater than all the carbon footprint of the whole of Jordan.

Beating boredom

Watching online videos accounts for the biggest chunk of the world's internet traffic – 60% – and generates 300m tonnes of carbon dioxide a year, which is roughly 1% of global emissions, according to French think tank, The Shift Project. This is because, as well as the power used by devices, energy is consumed by the servers and networks that distribute the content.

"If you flip on your television to watch Netflix, around half the power goes into powering the TV and half the energy goes into powering Netflix," says Lancaster University's Mike Hazas. Some experts, however, insist that the energy needed to store and stream videos is less than more intensive computational activities performed by data centres.

Some of the climate pollution that comes from internet use also comes from some rather dirty browsing. Pornography accounts for a third of video streaming traffic, generating as much carbon dioxide as Belgium in a year.

On-demand video services such as Amazon Prime and Netflix account for another third while the final third of the video streaming carbon footprint includes watching YouTube and clips on social media. Netflix says its total global energy consumption reached 451,000 megawatt hours per year, which is enough to power 37,000 homes, but insists it purchases renewable energy certificates and carbon offsets to compensate for any energy that comes from fossil fuel sources.

Streaming and downloading music also has an impact. Rabih Bashroush, a researcher at the University of East London and lead scientist at the European Commission-funded Eureca project, calculated that five billion plays clocked up by just one music video – the hit 2017 song Despacito – consumed as much electricity as Chad, Guinea-Bissau, Somalia, Sierra Leone and the Central African Republic put together in a single year. "The total emissions for streaming that song could be over 250,000 tonnes of carbon dioxide," he says.

However, Hazas points out that some YouTube views are unintentional. A study led by his colleague Kelly Widdicks analysed streaming habits and found that some viewers use YouTube as background noise, and sometimes even fall asleep, generating carbon for no gain. Cutting back on these uses or stopping video from playing unintentionally on an open browser when you are not watching, could help keep your carbon footprint down.

Fiddling with autoplay settings and switching from high definition to a lower resolution when it's not necessary can also make a difference. Hazas says the most efficient way to see your favourite programme is by waiting for it to be on terrestrial TV, or choosing to stream it over wi-fi rather than on a mobile network can also make a difference.

"Using a phone over a mobile network is at least twice as energy intensive than using it over wi-fi, so if you can wait until you get home to watch YouTube that's best," he adds. And, one of the most enjoyable ways to be more environmentally friendly is to watch films and TV together.

"On the whole, audio is less problematic," says Hazas, as streaming audio is less energy and carbon intensive than streaming images. But researchers at the University of Oslo found that environmental impact of listening to music has never been higher, with a footprint of 200,000-350,000 tonnes of CO2e in the US alone for downloading tracks onto MP3 players. It's thought emissions for streaming services may be even higher.

However, the number of times you listen to a piece of music can make a difference. Buying a physical CD or record can be better if you listen to the same album repeatedly, but if you only listen to a piece of music less than 27 times over your lifetime, then streaming can be better.

Similarly, the environmental cost of downloading video games is thought to be higher than producing and distributing Blu-Ray disks from shops. The first attempt to map the energy use of gaming in the US found it produces 24 megatonnes of carbon dioxide a year. Researchers behind the study at the University of California found US gamers use 2.4% of their household electricity – 32 terawatt hours of energy every year – which is more than freezers or washing machines. They also showed that streaming games uses more energy, so gaming carbon emissions may worsen as more people adopt games where the computational work is being done remotely rather than on individual consoles, such as with devices like Google's Stadia.

But Hazas is more optimistic. "The carbon footprint of playing multiplayer games like Fortnite isn't too bad," he says. "They are designed to be responsive so they don't require too much data traffic. For example, you get a position of a character on a map, or the fact someone's shooting, but it doesn't take too much data to communicate that."

However, updating games is more carbon intensive. "Flagship games like Fortnite or Call of Duty require lots of updates so you're looking at gigabytes every couple of weeks for downloads, which add new features."

For those who enjoy flicking through their social media, there is some good news. It is arguably the least carbon intensive form of digital entertainment. According to Facebook's sustainability report, a user's annual carbon footprint is 299g CO2e, which is less than boiling the water for a pot of tea. But if you consider the platform has more than one billion users, that's a lot of pots of tea.

It's possible to save carbon by disabling some features for social media and other apps.

"We've found that app updates and automatic cloud backups are about 10% of traffic from mobile phones," says Hazas. "So, switching off unnecessary cloud backups and switching off automatic downloads for app updates are good things to do."

But while changes in our personal online behaviour will only take us so far, there also needs to be change within the industry to ensure that carbon emissions can be reduced, says Elizabeth Jardim, a senior corporate campaigner at environmental campaign group Greenpeace. The IT industry's greenhouse gas emissions are predicted to reach 14% of global emissions by 2040 but at the same time the UN's International Telecommunication's Union has set the industry the target of reducing its emissions by 45% over the next decade.

"It's more important to make sure the companies building the internet are switching to renewable and phasing out fossil fuels," says Jardim. "That's when searching will be more guilt free."

~Internet

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The club magazine
All it needs is YOU
Send stories of your radio news to the editor
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A TIME CAPSULE FOR THE FUTURE

Svalbard is a remote, frozen archipelago midway between Norway and the North Pole.

Polar bears outnumber humans, yet it represents arguably the biggest insurance the world holds in case of global technological devastation.

And we just took out a fresh policy.

For the first time ever, open-source code that forms the basis of most of our computerised devices has been archived in a vault that should protect it for 1,000 years.

If you want to find the code vault, head north. Far north.

The code vault

If you're thinking that an Arctic code vault sounds like a high-tech library crossed with a Bond villain's lair, you're not far off. Svalbard is remote, home to the world's northernmost town, and is protected by the century-old International Svalbard Treaty.

Crucially, it's already home to the successful Global Seed Vault, which saves seeds in case entire species ever get wiped out by disease or climate change.

Just down the road, the GitHub Archive Program found space in a decommissioned coal mine run by the Arctic World Archive, which already houses and preserves historical and cultural data from several countries.

It's a long trek down into the vault.

All put together, the barren archipelago makes the perfect place to seal something you want to protect in a steel vault 250 meters under the permafrost.

The Arctic Code Archive aims to serve as a time capsule for the future, saving huge amounts of open-source computer code alongside a range of data including a record of Australia's biodiversity and examples of culturally significant works.

If you were to make your way into the mine and crack the large steel vault, you'd find 186 film reels inside, each a kilometer long, covered in tiny dots. It's not just miniaturized text, though. To squeeze in as much as possible, the code is stored in tiny QR codes that pack the information in as densely as possible.

Git Hub has found a way to make sure future generations can decipher the code.

You run into open-source code every day without even knowing it. In fact, you're probably using some to read this article right now. "Open-source" means the code is shared freely between developers around the world and can be used for any application.

That means a little piece of coding could end up in anything from your TV to a Mars mission. The concept fosters collaborative software engineering around the globe.
It's incredibly important, and it spans a range of complexity — from huge algorithms that mine Bitcoin to single lines of code that determine whether a number is odd or even.

Archiving all of that work means it won't have to be re-invented if it is ever lost, saving time and money.

This is no normal film — it's coated in silver halide crystals.

The archive reels hold a combined 21 terabytes of code. That may not seem much if you have a hard drive at home that holds 2 terabytes.

But we're not storing your photos or movies here — each character in a line of code takes up a tiny bit of space. If someone who types at about 60 words a minute sat down and tried to fill up all that space, it would take 111,300 years — and that's if they didn't get tired or need any breaks.

Built to last

If you're making an archive that's going to last, you've got to make sure it isn't going to degrade over time.

While it might seem intuitive to store the information on something like a Blu-ray disc or on hard drives, these are notorious for breaking down.

They're designed to be convenient, not to be heirlooms you pass down for generations.

"You might have seen this in the past ... years after you touched it last, you try to boot it up again and it wouldn't work," says GitHub's VP of strategic programs, Thomas Dhomke. "The (information) bits have been lost."

Things that survive the ravages of time tend to be physical. Think papyrus scrolls, Egyptian carvings or Assyrian tablets. In fact, there's a good chance that people of a distant future will know more about ancient people than they will about us.

Storing code in the Arctic permafrost gives you a host of benefits.

When it comes to making physical copies, your office A4 wouldn't cut it, so they used a refined version of century- old darkroom photography technology to create the archival film reels. Each film is made of polyester coated in very stable silver halide crystals that allow the information to be packed in tightly.

The film has a 500-year life span, but tests that simulate aging suggest it will last twice as long. Storing it in the Arctic permafrost on Svalbard gives you a host of added benefits.

The cold prevents any degradation caused by heat; it's locked deep in a mountain, protected from damaging UV rays and safe from rising sea levels; and it's remote enough that it's not likely to be lost to looters from a dystopian future.
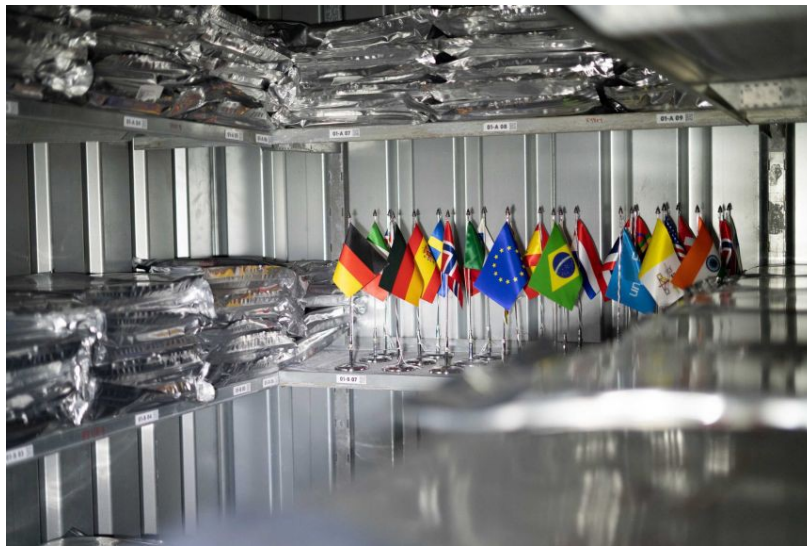
The vault is a global effort, with Australia having its own data in the mix

Despite global warming, and a previous event at the seed bank where some of the permafrost melted, it's believed the archive is buried deep enough that the permafrost should survive.

Just in case, they're not stopping there.

The GitHub Archive Program is working with partners to figure out a way to store all public repositories for a whopping 10,000 years.

Called Project Silica, the goal is to write archives into the molecular structure of quartz glass platters with an incredibly precise laser that pulses a quadrillion times a second.
That's a 1 followed by 15 zeros: 1,000,000,000,000,000.

No clouds on the horizon

You might be wondering: doesn't the internet already save all of our information in the cloud? Yes, but it's not as safe as you might think.
There are actually three levels of archiving, known as hot, warm and cold.

The Svalbard arc hipelago definitely fits into the "cold" category.

The hot layer is made up of online repositories like GitHub, which allows users to upload their code for anyone to use.

This is copied to servers around the world and is readily accessible to anyone with an internet connection. While access is quick and easy, if someone removes their code from the hot layer, it is no longer available. That doesn't make for a very reliable archive.

The warm layer is run by the Internet Archive, which runs the Way Back Machine.

It crawls the web and regularly takes snapshots of sites and keeps them on their servers. Anyone can access them, but you have to do a bit of digging.

For example, you can still find the ABC webpage from January 3, 1997, which has the story of then Victorian Premier Jeff Kennett warning against Australia becoming a republic.

The Internet Archive isn't a perfect system — it takes regular snapshots, but anything that happened in-between can be lost.

Both the hot and warm layer work well together to give a fair idea of what the internet might have held at any given time, but they both suffer from one critical weakness: they are made up of electronics.

Boxes of physical code may be low -tech, but they're safe.

The internet is essentially millions of interconnected computers and huge data storage banks that your device can access.

If there was to be an event that disrupted or destroyed those computers, the information they hold — and therefore the internet — could be destroyed forever.

The Arctic vault represents the cold layer of archiving.

It's an incomplete snapshot taken at regular intervals (the plan is to add to the archive every five years), but one that should survive the majority of foreseeable calamities.

Some of the potential disasters are academic, but some we've seen before.

Going out with a bang

In early September 1859, the sun belched, and the world's very rudimentary electronics were fried.

It's known as the Carrington Event, and as the matter ejected from the sun headed towards Earth, the lights of the auroras were seen as far north as Queensland and all the way down to the Caribbean.

When it hit, the largest geomagnetic storm ever recorded caused sparks to fly off telegraph wires, setting fires to their poles. Some operators reported being able to send messages even though their power supplies were disconnected. If that were to happen today, most of our electronics — both here and in space — would be destroyed. And it's not really a matter of if, but when.

It also doesn't have to be a huge astronomical event that causes us to lose many generations' worth of information. If a pandemic or economic downturn was severe enough, we might be unable to maintain or power the computers that make up the internet.

If you consider how technology has changed in just the last few decades — the rise of the internet, the increased use of mobile phones — then it's easy to understand how people living a hundred or a thousand years from now are likely to have technology that's wildly different from ours. The archive is part of our generation's legacy. As Mr Dhomke says: "We want to preserve that knowledge and enable future generations to learn about our time, in the same way you can learn (about the past) in a library or a museum."

Australian data has found a home in the archive, too, including the Atlas of Living Australia that details our country's plant and animal biodiversity, and machine learning models from Geoscience Australia that are used to understand bushfires and climate change.

A modern-day Rosetta Stone

There's no saying who might want to use the archive in the future, so archivists had to come up with a solution both for those who don't speak English and for those who might not understand our coding languages.
The films start with a guide to reading the archive, since there's a decent chance that anyone finding them in the future may not know how to interpret the QR codes.

Even more importantly, that's followed by a document called the Tech Tree, which details software development, programming languages and computer programming in general.
Crucially, it's all readable by eye.
Anyone wanting to read the archives might need to have at least a basic understanding of creating a magnifying lens (something humans achieved about 1,000 years ago) but after that the archive could all be translated using a pen and paper. The guides aren't just in English, either. Like a modern-day Rosetta Stone, they are also written in Arabic, Spanish, Chinese, and Hindi, so that future historians have the best chance of deciphering the code. "It takes time, obviously ... but it doesn't need any special machinery," Mr Dhomke says.

"Even if in 1,000 years something dramatic has happened that has thrown us back to the Stone Age, or if extraterrestrials or aliens are coming to the archive, we hope they will all understand what's on those film reels."
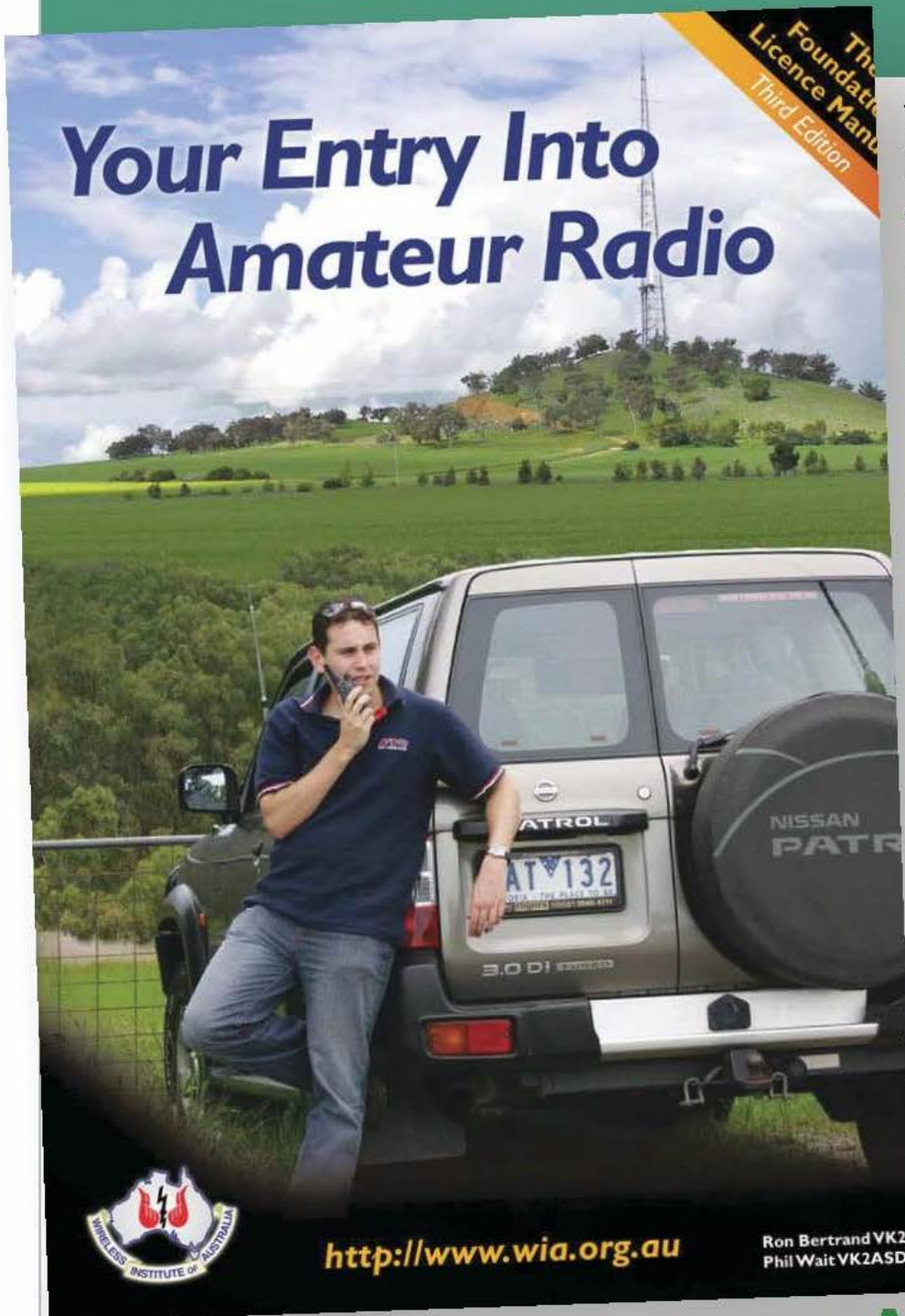
~Internet

Ironic Sights

Wonder if the dentist owns the lolly shop?

NEW
Foundation Manual

NEVARC Net

40 Meter Net
7 Days a Week
10am Local time
(East coast)
7.097 MHz LSB
Approximately + or – QRM

Hosted by Ron VK3AHR
"Australia Ham Radio 40 Meter Net"

President, VK2VU, Gary
Vice President, Tom VK3NXT
Secretary, VK2FKLR, Kathleen
Treasurer, Amy

NEVARC CLUB PROFILE

History
The North East Victoria Amateur Radio Club (NEVARC) formed in 2014.
As of the 7th August 2014, Incorporated, Registered Incorporation number A0061589C.
NEVARC is an affiliated club of the Wireless Institute of Australia and The Radio Amateur Society of Australia Inc.

Meetings
Meetings details are on the club website, the Second Sunday of every month, check for latest scheduled details.
Meetings held at the Belviour Guides Hall, 6 Silva Drive West Wodonga.
Meetings commence with a BBQ (with a donation tin for meat) at 12pm with meeting afterwards.
Members are encouraged to turn up a little earlier for clubroom maintenance.
Call in Via VK3RWO, 146.975, 123 Hz tone.

VK3ANE NETS

HF
7.097 MHz   7 Days a Week - 10am Local time
3.622 MHz   Wednesday - 8.30pm Local time

VHF
VK3RWO Repeater 146.975 MHz–Monday - 8pm Local time
All nets are hosted by Ron Hanel VK3AHR using the club callsign VK3ANE

Benefits
To provide the opportunity for Amateur Radio Operators and Short Wave Listeners to enhance their hobby through interaction with other Amateur Radio Operators and Short Wave Listeners. Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of likeminded radio and electronics enthusiasts. Excellent club facilities and environment, ample car parking.

Website: **www.nevarc.org.au**

Facebook: **www.facebook.com/nevicARC/**

Postal: **NEVARC Secretary**
                  PO Box 69
                  Wahgunyah Vic 3683